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Report of the Statistical Data and Metadata Exchange sponsors

Note by the Secretary-General

In accordance with Economic and Social Council decision 2016/220 and past practice, the Secretary-General has the honour to transmit the report of the Statistical Data and Metadata Exchange (SDMX) sponsors. The present report summarizes achievements, recent developments and planned activities by the SDMX initiative, in areas such as macroeconomic statistics, international merchandise trade statistics and the Sustainable Development Goals, among others. An overview of SDMX-related capacity development plans is also included.

The Commission is invited to take note of the report.

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Report of the Statistical Data and Metadata Exchange sponsors

Summary

The present document provides an overview of the progress made with regard to the implementation of Statistical Data and Metadata Exchange (SDMX) standards since the previous report, submitted to the Commission in March 2015. The scope of SDMX implementation is widening, with data exchange already established in such statistical domains as national accounts and balance of payments, while development is underway in such areas as the Sustainable Development Goals, labour, prices, education and international merchandise trade. In addition to benefits resulting from the automation of data exchange, including improvements in timeliness and reliability, an increasing number of statistical agencies are using open-source, SDMX-based software in enterprise architecture, which enables them to realize substantial improvements in productivity and cost-efficiency.

I. Introduction

1. In 2001, the Bank for International Settlements, the European Central Bank, Eurostat, the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD) and the United Nations joined together to develop more efficient processes and standards for exchanging and sharing data and metadata. The World Bank joined the initial group of sponsor organizations in 2003. The commitment of the sponsor organizations to the Statistical Data and Metadata Exchange (SDMX) initiative was reinforced in 2007 by a memorandum of understanding that established an SDMX secretariat and set the framework for the creation of two working groups: the SDMX Technical Standards Working Group and the SDMX Statistical Working Group.

2. The aim of the SDMX initiative is to create and maintain technical and statistical standards and guidelines, together with an information technology architecture and information technology tools, to be used and implemented by the SDMX sponsors and other organizations dealing with statistical data and exchange metadata. Combined with modern information technology, these SDMX standards and guidelines should lead to improved efficiency when managing statistical business processes. After more than 10 years of experience, the SDMX standards and guidelines have progressed sufficiently to be broadly implemented in statistical domains and, globally, by statistics organizations.

3. The Statistical Commission has received SDMX progress reports since 2002. The Commission recognized and supported the SDMX standards and guidelines in 2008 as the preferred standard for the exchange and sharing of data and metadata, requesting the SDMX sponsors to continue their work and to encourage national and international statistics organizations to increase the use and implementation of SDMX.

II. New developments

Road map 2020

4. In March 2016, the sponsors released a document entitled "SDMX Roadmap 2020", presenting a vision of where SDMX is heading in the next few years. In the document, the sponsors identify the following four main priority areas for work:

(a) Strengthening the implementation of SDMX;

(b) Making data usage easier, especially for policy use;

(c) Modernizing statistical processes and improving the SDMX standard and the information technology infrastructure;

(d) Improving communication.

5. The road map is complemented by a rolling medium-term action plan for sponsor organizations, with deadlines and responsibilities. The full road map, with its key objectives, is published at https://sdmx.org/wp-content/uploads/SDMX_roadmap2020_FINAL.pdf.

Sustainable Development Goals

6. At its third meeting, held from 30 March to 1 April 2016, the Inter-Agency and Expert Group on Sustainable Development Goal Indicators established the Working Group on SDMX. The Working Group, composed of representatives of Governments and international agencies, is mandated to develop an SDMX-based solution for the exchange and dissemination of Sustainable Development Goal indicator data and metadata. The workplan of the Working Group has been approved and envisages setting up a pilot data exchange in the fourth quarter of 2017 and a production-level exchange of data and metadata by the end of 2018.

International merchandise trade statistics

7. An inter-agency working group comprising Eurostat, the International Trade Centre, OECD, the Statistics Division (acting as the secretariat and Chair of the working group) and the United Nations Conference on Trade and Development (UNCTAD) was established in 2013 to support the implementation of SDMX standards in international merchandise trade statistics. The working group seeks to specify uniform structures, concepts, definitions and code lists for international merchandise trade statistics data and metadata that comply with the latest version of the SDMX standard (2.1) and follow the latest recommendations contained in the document entitled "International Merchandise Trade Statistics: Concepts and Definitions 2010" (ST/ESA/STAT/SER.M/52/Rev.3). The design of the draft data structure definition for an SDMX framework for international merchandise trade statistics was completed early in May 2015 and released for global consultation and public review, which was conducted in mid-2015, in order to receive broad input on the proposed data structure definition. The results of the global consultation were analysed and integrated into the revised global dataset structure definition for international merchandise trade statistics. This revised version and the relevant documents were submitted to the SDMX secretariat and made available at http://comtrade.un.org/sdmx in mid-2016. In addition, the working group and other relevant partner organizations are now developing implementation strategies and undertaking capacity-building activities in various countries, such as the establishment of a pilot implementation project with Mexico and Morocco.

Labour statistics

8. A global project on SDMX for labour statistics has been started, and the artefacts are expected to be published in the fourth quarter of 2017.

Education statistics

9. A global project on SDMX for education statistics is underway, and the artefacts are expected to be published in the first half of 2017.

III. Ongoing technical work

Macroeconomic statistics

10. The Ownership Group for SDMX in Macroeconomic Statistics has overseen the successful implementation of SDMX for national accounts, balance of payments

and foreign direct investments based on the global data structure definitions available for those domains since 2014. While national implementations continue to be carried out, on an international level, the Task Force on International Data Cooperation is looking into further leveraging the standard for automated international data exchange. A dataset for national accounts (gross domestic product and population) is in production, and further work (sector accounts and balance of payments) is envisaged. Work is also underway to create global data structure definitions for price indexes, starting in 2017 with the consumer price index and the harmonized index of consumer prices. Both the Ownership Group and the Task Force were to meet in Luxembourg in December 2016 to discuss further next steps.

Enhanced General Data Dissemination System and Special Data Dissemination Standard Plus

11. IMF has increased its efforts to support countries participating in the enhanced General Data Dissemination System to establish a national data portal for macroeconomic and financial statistics (national summary data page) that allows for data dissemination to the general public for human users and in SDMX format, in accordance with an advanced release calendar. A similar data dissemination approach, with an SDMX-enabled national summary data page, was introduced in 2014 for countries already adhering to the Special Data Dissemination Standard Plus. By November 2016, 10 enhanced General Data Dissemination System participants were already offering data dissemination in SDMX format by means of their national summary data page, in addition to the 11 countries adhering to the Special Data Dissemination Standard Plus.

SDMX Central

12. IMF has developed a cloud-based Excel-to-SDMX converter service that is integrated with the IMF SDMX registry and notification services. This cloud-based product, called SDMX Central, is aimed at facilitating the generation of statistical data files in SDMX format, compliant with the SDMX data structures used for the Special Data Dissemination Standard Plus and the enhanced General Data Dissemination System.

SMDX in pull mode

13. In the context of international data cooperation for macroeconomic statistics, investigations are ongoing among selected sponsor organizations to further automate the exchange of data by using pull techniques supported by web services and notifications.

Trade statistics

14. In March 2016, the World Bank released two web services in the field of trade statistics, both based on a representational state transfer (REST) system architecture for SDMX. One service was for the UNCTAD Trade Analysis and Information System database and the other was the aggregated trade statistics database, TradeStats, both of which are available through the World Integrated Trade Solution website.

Global Registry

15. The SDMX Global Registry emerged from the decision of SDMX-sponsoring institutions to launch the development of global data structure definitions to support the worldwide technical implementation of the sixth edition of the Balance of Payments and International Investment Position Manual and the System of National Accounts 2008 (2008 SNA). The Global Registry contains metadata, data structure definitions and related artefacts (such as concept schemes, metadata structure definitions and code lists), as well as other SDMX data structure definitions and artefacts maintained and used by international organizations (maintenance agencies). All the structures and artefacts held by the Global Registry are public and made centrally available to the SDMX community. The current version of the Global Registry was published in November 2015. The World Bank conducted an information security scan of the Global Registry in December 2015 and provided a vulnerability report; the vulnerabilities identified were fixed under the supervision of the European Central Bank.

IV. Capacity-building

16. The Statistics Division is planning or conducting a number of capacity-building activities in several areas. With respect to the Sustainable Development Goals, the Division is about to launch a project, funded by the Department for International Development of the United Kingdom of Great Britain and Northern Ireland, to establish an SDMX-based dissemination and exchange of Sustainable Development Goal indicators and metadata with 20 countries in Asia and Africa. As part of another large-scale project, funded under the tenth tranche of the Development Account, the regional commissions and the Statistics Division will conduct a series of workshops and training events on SDMX implementation in the context of the Sustainable Development Goals. The Division is also undertaking a number of capacity-building activities in conjunction with the implementation of SDMX for international merchandise trade statistics.

17. In 2016, Eurostat developed an implementation strategy, entitled "SDMX implementation: laying the path to 2020", based on the SDMX road map. This is a direct, "how-to" response to the higher-level commitments outlined in the road map. Capacity-building is an important part of the Eurostat SDMX implementation strategy, which foresees the following actions:

(a) To redesign the SDMX Info Space website in three languages, English, French and German, which will result in easier access to information on SDMX implementations, supporting tools for SDMX-based data exchange, tutorials and training dates and materials, among other benefits;

(b) To improve communication with senior managers and subject matter experts;

(c) To offer further training through new recorded webinar opportunities and changes in course content;

(d) To support the member States of the European Statistical System in the implementation of SDMX tools.

18. OECD organizes and participates in capacity-building events linked to the SDMX Global Conferences and SDMX Expert Group meetings. This has resulted in many sessions on SDMX implementation and the use of best practices linked to the SDMX guidelines. For the 2016 SDMX Expert Group meeting, OECD organized breakout sessions on how to design and build an enterprise architecture with SDMX and on what is needed to make SDMX implementation easier.

19. On an ad hoc basis, the European Central Bank organizes special one-day workshops for data vendors. The workshops are tailored to the needs of technical staff, whose responsibilities are to identify, collect and ensure the continuous update of data and statistics within the data vendor industry and/or among large-volume data users. At the workshops, special training is offered to introduce the SDMX standard, SDMX data structures and SDMX web services. Furthermore, in 2015 and 2016, the Bank made SDMX Java Suite available to the SDMX community when it published, on sdmxTools.org, several updates of its Java Suite, which makes it possible to load and convert SDMX files of the following formats: SDMX-EDI, SDMX 2.0 compact, SDMX 2.1 structure-specific, MarketMap/Fame and comma-separated values (CSV). SDMX Java Suite also facilitates the reading of data structure definition files in SDMX-EDI format and is the backbone of the SDMX system used by the European Central Bank and several national central banks.

V. Technical and statistical standards

20. The SDMX Technical Standards Working Group and the SDMX Statistical Working Group are mainly responsible for the management and enhancement of SDMX technical and statistical standards and the related SDMX information technology applications.

21. The work of the SDMX Technical Standards Working Group focused on the following main deliverables: the validation and transformation language (VTL), additional formats for data dissemination, and the continuous maintenance of the SDMX technical standards. The Task Force for the Validation and Transformation Language finalized a first version of the language specification, which was published on the SDMX website in March 2015. A public review of the second, updated version of the VTL specification was opened in 2016. The Technical Standards Working Group is currently incorporating support for VTL in the SDMX technical standards. The Technical Standards Working Group published a new version of the application programming interface specification for REST-based (RESTful) SDMX web services, with bug fixes and minor new features. Updated specifications for the data exchange format for the SDMX JavaScript object notation (SDMX-JSON) were also released for public review. The Technical Standards Working Group and Statistical Working Group organized capacity-building sessions at the SDMX Global Conference held in 2015. The Technical Standards Working Group adopted a new work programme early in 2016 with four main work streams: the validation and transformation language, the SDMX information model, data exchange formats and the application programming interfaces. Further work is ongoing in all these work streams, including an analysis of user requirements for possible major updates to the SDMX information model.

22. In 2015 and 2016, the SDMX Statistical Working Group published guidelines that included confidentiality and embargo best practices, non-calendar year reporting, a checklist for SDMX design project management and instructions on how to code time transformations and how to model a statistical domain for data exchange. The Statistical Working Group is currently working on several items, including a green paper for developments to the SDMX standard according to business requirements, a global metadata structure definition and several new cross-domain code lists.

VI. Events

23. The fifth SDMX Global Conference was held from 28 to 30 September 2015 in Bangkok, marking the first time that it was held outside Europe or North America. The Conference was hosted jointly by the Economic and Social Commission for Asia and the Pacific and the Statistics Division. The Conference, the theme of which was "SDMX in Action", was attended by over 170 participants from national statistical offices, central banks, international agencies and private sector organizations, representing all regions of the world. A one-day capacity-building session preceded the meeting. The evaluation survey showed a very high approval rating (over 90 per cent) and indicated that participants were interested in implementing SDMX at their agencies.

24. The eighth SDMX Expert Group meeting was held on 19 and 20 October 2016 at the National Institute of Statistics and Geography headquarters in Aguascalientes, Mexico. The meeting was preceded by a two-day capacity-building session and was attended by 96 participants — a record for the event — from 18 national statistical offices, 9 central banks, 2 government ministries, 10 international organizations and 3 independent consultants. Participation covered Europe, Africa, Asia, Australasia and North and South America. The Expert Group meeting comprised a panel session, presentations on SDMX implementation in national statistical offices, central banks and international organizations, discussions on specific topics such as modernization standards and requirements for the next version of SDMX, and breakout sessions on facilitating SDMX implementations and on envisaging enterprise architecture with SDMX at the core.

25. The sixth SDMX Global Conference will be hosted jointly by the Economic Commission for Africa and the African Development Bank in Addis Ababa, from 2 to 4 October 2017, with the opening day of the Conference being organized by the SDMX sponsors and devoted to capacity-building. The programme of the Conference is currently being prepared; emphasis will be placed on presenting recent developments and initiatives in the area of data exchange and on the benefits realized by various national and international statistics organizations resulting from the use of SDMX tools in their enterprise architecture.

VII. Action required by the Statistical Commission

26. The Statistical Commission is invited to take note of the present report.